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JAPANESE PATENT OFFICE

PATENT ABSTRACTS OF JAPAN

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F01L 1/34(21) Application number: **07098508**(22) Date of filing: **24.04.95**(30) Priority: **29.08.94 JP 08203251**(71) Applicant: **NIPPONDENSO CO LTD**(72) Inventor: **USHIDA MASAYASU**(54) **VALVE-TIMING ADJUSTING DEVICE FOR INTERNAL COMBUSTION ENGINE**

hydraulic chamber is prevented in the vane rotor 9.

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(57) Abstract

PURPOSE: To obtain a valve-timing adjusting device for an internal combustion engine having superior response to opening and closing control for an intake and exhaust valve and high accuracy by reducing oil leakage in oil passages.

CONSTITUTION: A check valve 20 and a pilot valve 25, and a check valve 30 and a pilot valve 35 are formed to constitute a pilot type check valve, respectively and are housed in the vanes 9a, and 9b of a vane rotor 9. Oil passages 60a, 60b formed in a cam shaft 2 are communicated with oil passages 61a, 61b formed in the vane rotor 9, respectively through an abut part 70 in the axial direction toward the cam shaft 2 and the vane rotor 9. The oil passage 61a is communicated with the hydraulic chamber 42 of a vane 9a through the oil passage 62a. The oil passage 61b is communicated with the hydraulic chamber 47 of a vane 9b through the oil passage 62b. This eliminates the need for a sealing member between the vane rotor 9 and the cam shaft 2. In addition, the back flow of pressure oil from a lagging-angle hydraulic chamber, and a leading-angle

